East Side Access

MTA LONG ISLAND RAIL ROAD'S CONNECTION TO GRAND CENTRAL TERMINAL

Capital Construction

Long Island Rail Road
East Side Access

the **need**

The New York metropolitan region is home to the nation's most extensive—and most traveled—rail transit network, serving approximately 6 million riders per day. The Long Island Rail Road (LIRR) alone is the largest suburban commuter railroad in the country, carrying 272,000 passengers every 24 hours on 718 trains. The metropolitan region's rail network is now operating at or near capacity. The network does not provide full intermodal and regional connectivity. As a result, millions of travelers are delayed by indirect routing and/or by overcrowding that adds time and inconvenience to their commutes.

Today, 230,000 of LIRR's daily riders use Penn Station. Of those, nearly 50 percent must take another form of transportation or walk a good distance to reach their jobs on Manhattan's East Side. In addition, the LIRR trains using Penn Station share the terminal with Amtrak and NJ TRANSIT trains. Already at or near its service limits, Penn Station will be hard pressed to accommodate more service from each rail line—service that is necessary to address future ridership growth from throughout the New York metropolitan region.

the **benefits**

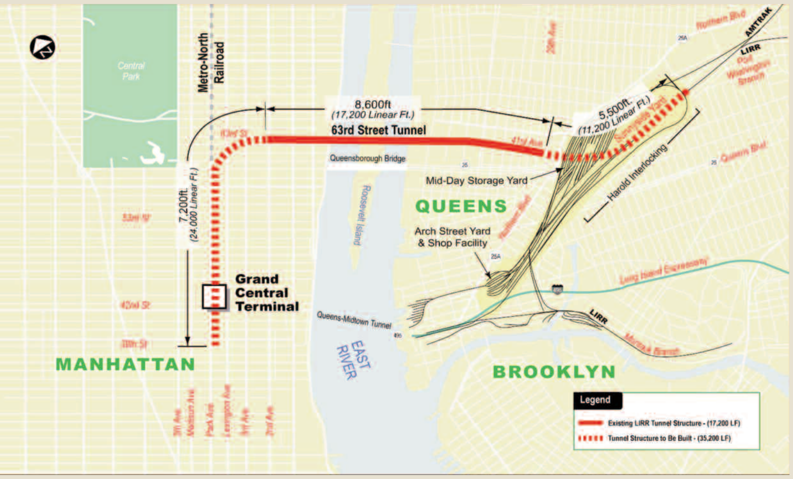
East Side Access provides a solution. The project will add much-needed tunnel capacity across the East River, shorten travel time for thousands of Long Island commuters headed for Manhattan's East Side, and, by diverting half of LIRR's riders to Grand Central Terminal, ease the crowding at Penn Station. Additional growth at Penn Station will also then be possible.

Through this redistribution of ridership, East Side Access will have a ripple effect on the region's transportation network, its economy and its quality of life. Dramatically improving conditions throughout the LIRR network and at Penn Station, East Side Access will create new transportation capacity that is essential for regional growth, will support the economic vitality of the Grand Central area, and also will help reduce auto travel and associated pollution.

The project will stimulate regional growth and development through:

- **Nearly 50 percent more rail capacity into Manhattan from Long Island and Queens, saving East Side-bound commuters 30 to 40 minutes per day**
- **Less urban sprawl, as a result of job and income growth in the area around Grand Central Terminal**
- **Support of the growing Long Island City and Jamaica, Queens business districts through a new station at Sunnyside and a connection to AirTrain at Jamaica**
- **More opportunity for NYC residents to get to jobs on Long Island by reverse commuting**
- **Better conditions at Penn Station through congestion relief**
- **Easy transfers at Grand Central Terminal between Long Island and Metro-North destinations in the Bronx, Westchester, Hudson Valley and Connecticut**
- **Full use of the existing 63rd Street Tunnel for the first time**
- **Reduction in auto travel by more than 500,000 miles per day and decrease in associated air pollution**
- **Reduction of about two lanes of traffic during peak hours on the East River bridges and tunnel**
- **Thousands of new jobs in construction and related industries in New York**
- **Direct intermodal connections to NYCT subways**

a look at the **project**



The Route

East Side Access will route the LIRR through new track connections in Queens, new tunnels under Sunnyside Yard, and through the existing 63rd Street Tunnel under the East River to Second Avenue in Manhattan, where new tunnels will curve south under Park Avenue and enter a new LIRR terminal beneath Grand Central Terminal (GCT).

The Principal Components

East Side Access is a massive project—the largest ever undertaken by the Metropolitan Transportation Authority. Each component by itself would be a major undertaking. These include tunneling deep under Manhattan's East Side, tunneling through soft ground in Queens, connecting to the complex of crossovers and switches at Harold Interlocking in Queens and creating a new terminal below GCT. East Side Access combines all of these components and more, and will be constructed in an urban area dense in population, buildings, infrastructure and rail lines while causing minimal disruption to daily life and railroad operations.

Queens alignment. Two tunnels beginning at the end of the existing 63rd Street Tunnel will fan out to four tunnels crossing under Amtrak's Sunnyside Yard in Queens. They will rise to grade, meeting LIRR Main Line and Port Washington tracks at their connections in Harold Interlocking, the busiest railroad interchange in the country. Tunnels will also connect to the loop tracks around Sunnyside Yard. Located largely in soft ground, the tunnels will be built using both cut-and-cover construction and soft-ground tunnel boring machines.

63rd Street Tunnel. Built in the 1960s, the two-level 63rd Street Tunnel under the East River between Queens and Manhattan is used on the upper level by NYCT subways; the two tracks on the lower level, reserved for the LIRR connection to Grand Central, will connect the new tunnels in Queens and Manhattan.

Manhattan alignment. New tunnels will extend from the western end of the 63rd Street Tunnel at Second Avenue to the new LIRR terminal deep under GCT. The tunnels will curve south under Park Avenue at 61st Street, pass below the 60th Street tunnels of the N and R subway, and remain below the 53rd Street E subway as they approach GCT. The Manhattan tunnels will be bored and mined through solid rock.

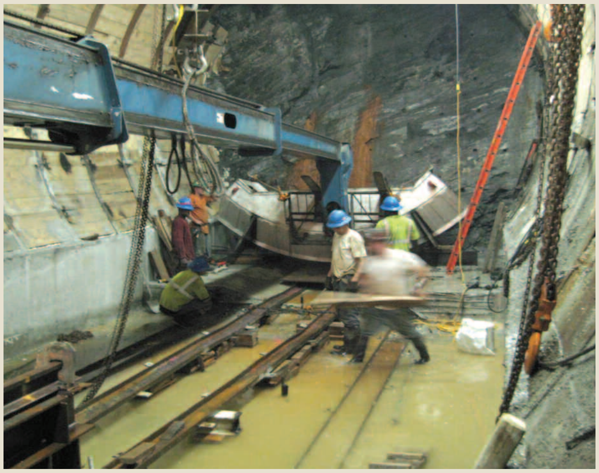
New LIRR terminal at GCT. Located below Grand Central Terminal, a welcoming new LIRR facility will provide passengers with a premium travel experience. Arriving on one of eight tracks on four platforms, passengers will move to a spacious, brightly lit mezzanine, where convenient escalators and elevators will take them to a new LIRR concourse that echoes the ambience and palette of GCT. From there, passengers will exit to the street, either through GCT and its existing entrances or through new off-street entrances that will be built.

coordinated construction

A complex undertaking requiring construction at numerous sites, often simultaneously, East Side Access is being carefully coordinated to achieve maximum efficiency and minimal disruption throughout its construction. The overall East Side Access construction strategy is as follows:

- **Excavation of the existing bellmouth structure in Queens, providing access to the lower level of the 63rd Street Tunnel**
- **Open-cut and bored tunnel excavations to provide connection of the 63rd Street Tunnel to the LIRR tracks in Queens**
- **Mining out of two deep hard-rock tunnels from the Manhattan end of the 63rd Street Tunnel to GCT**
- **Mining out of the LIRR terminal deep in the rock under GCT**

Special Construction Techniques



Building major tunnels in Manhattan and Queens—totaling more than seven miles—requires two very different methods of construction. In Manhattan, the subsurface condition is solid rock. Large tunnel boring machines (TBMs) will drill through over 30,000 feet of rock, from 63rd Street and Second Avenue all the way to 38th Street, creating the running tunnels. For the large caverns comprising the LIRR facility beneath Grand Central Terminal, the construction team, working from the TBM-mined tunnels, will use conventional mining techniques to excavate each of the two rock caverns.

In Queens, the western portion of the tunnels will be excavated using the cut-and-cover method, but the remaining tunneling, such as under Sunnyside Yard, must be accomplished with minimal surface impact to avoid disrupting LIRR and Amtrak operations. The subsurface conditions, which are mostly soft ground with a high water table, require special soft-ground TBMs that can bore through the ground while supporting the tunnel face and balancing the water pressure, thus controlling the water and soil during construction.

To minimize potential community impacts, the majority of tunneling material excavated in Manhattan will be removed through the existing 63rd Street Tunnel.

the history of the East Side Access Project

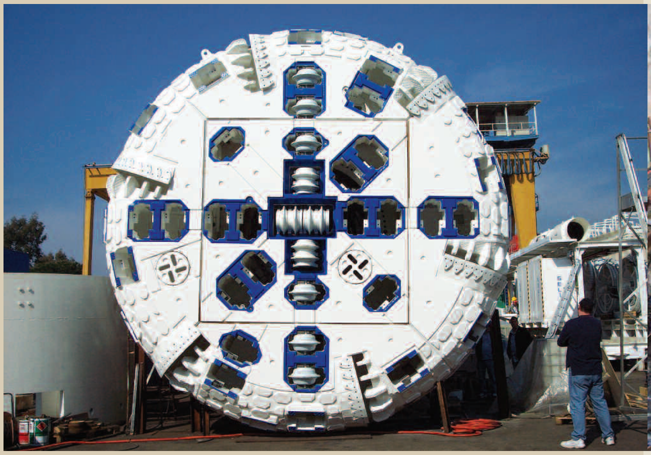
A New York Story

The Long Island Rail Road (LIRR)—the nation's oldest railroad still operating under its original name—opened in 1834 and, paralleling the population growth of Long Island, expanded to meet the needs of Manhattan-bound commuters, reaching Penn Station and its current configuration in 1910. Following years of service into Penn Station, the railroad began to consider further expansion to Manhattan's East Side in the 1960s, when changing commuting patterns from Long Island and eastern Queens indicated that the area was the destination for a growing number of riders.

Planning for a new East Side LIRR terminal began when the MTA's predecessor, the Metropolitan Commuter Transportation Authority, took over operations of the railroad in 1966. At about the same time, in 1965 in response to a long recognized need, the New York City Transit Authority embarked on construction of a new joint-use, two-level tunnel under the East River at 63rd Street. The upper level provided a Queens-Manhattan link for subway trains; the lower level was reserved for the LIRR, for a route to an eventual East Side terminal.

Following a series of plans and studies over the next three decades, the decision was made in 1998 to build what is now the East Side Access project, allowing LIRR trains to use the 63rd Street Tunnel on their way to a new terminal at Grand Central Terminal (GCT). In October 1998, a team was assembled to begin the environmental and planning work. The team's efforts culminated in 2001 with the Federal Transit Administration's (FTA) approval of the project's Final Environmental Impact Statement and issuance of a Record of Decision, allowing the project to move forward.

Construction for the LIRR East Side Access Project began in September 2001. In Summer 2006, two major contracts were awarded, marking the start of tunneling construction in both Manhattan and Queens. This early work was essential to provide storage and maintenance facilities so that major construction could proceed with minimal impact to the operating railroads. On December 16, 2006, FTA executed a $2.6 billion Full Funding Grant Agreement with the MTA for the East Side Access project, making this the largest federal transit grant to any single transportation project in history. The project has moved forward steadily, through a well-planned, step-by-step process without disruption to rail operations and with minimal impact to the surrounding communities.



key facts about East Side Access

World-Class Statistics

- A new 8-track terminal at GCT, the first major rail station in Manhattan in over 90 years and the largest mined underground terminal ever built in the U.S.
- Largest passenger rail terminal built in the U.S. since the late 1930s
- 7 miles of tunnels along 3.5 route miles
- 24 miles of new track
- 1.225 million cubic yards of excavated soil and rock
- 390,000 cubic yards of poured concrete
- 60,000 tons of reinforcing steel
- 350,000 square feet of new passenger concourse and service space within GCT

Schedule and Funding

The ESA project is on track for completion in 2015. Funding comes from the MTA's Capital Program and Federal Transit Administration grants.

For more information contact:

MTA Capital Construction
LIRR East Side Access Project
469 Seventh Avenue
New York, NY 10018
Phone: 212-967-0299
Fax: 212-695-4956
Website: www.mta.info/capconstr/esas/

MTA Capital Construction

Dr. Michael Horodniceanu
President

MTA Long Island Rail Road

Helena E. Williams
President

State of New York

David A. Paterson
Governor

Metropolitan Transportation Authority

H. Dale Hemmerdinger
Chairman

Jay Walder
Executive Director and CEO

MTA Capital Construction